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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,707	03/29/2005	Sven Voigt	L-399	2019

7590  
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03/26/2007

EXAMINER

ALLI, IYABO

ART UNIT

PAPER NUMBER

2877

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,707	<b>Applicant(s)</b> VOIGT ET AL.	
	<b>Examiner</b> IYABO S. ALLI	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/29/2005</u> | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Spahlinger** (US 7,190,463).

**Spahlinger** 's invention discloses a method for regulating the operating frequency of a fiber optic gyroscope with a closed control loop, in which the demodulated output signal of the FOG detector, as actual signal, is applied on the one hand to the input of an FOG main controller and on the other hand, via a gating filter, to a VCO that determines the system clock of the FOG, the output signal of the main controller, as modulation signal, being fed to a digital phase modulator formed in a multifunctional integrated optical chip, and, for the purpose of determining and regulating the exact operating frequency of the FOG, a periodic additional modulation signal is superposed on the demodulated detector output signal passing to the gating filter, characterized in that the additional modulation signal, as analog signal, is fed to separate phase correction electrodes formed in the multifunctional integrated optical chip (Column 10, lines 42-61 and Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a digital and an analog section in an Multifunctional integrated optical chip, as has been admitted in applicant prior art **DE 197 53 427 C1**, in order to maintain polarization while direct light between the various components in the fiber assembly.

3. Claims **2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Spahlinger** (US 7,190,463) in view of **Page** (5,157,461).

As to claims **2 and 3**, **Spahlinger's** invention discloses, a method for regulating the operating frequency of a fiber optic gyroscope with a closed control loop, in which the demodulated output signal of the FOG detector, as actual signal, is applied on the one hand to the input of an FOG main controller and on the other hand, via a gating filter, to a VCO that determines the system clock of the FOG, the output signal of the main controller, as modulation signal, being fed to a digital phase modulator formed in a multifunctional integrated optical chip, and, for the purpose of determining and regulating the exact operating frequency of the FOG, a periodic additional modulation signal is superposed on the demodulated detector output signal passing to the gating filter, characterized in that the additional modulation signal, as analog signal, is fed to separate phase correction electrodes formed in the multifunctional integrated optical chip above.

**Spahlinger** does not teach, a multifunctional integrated optical chip for a fiber optic gyroscope in which a phase modulator realized by electrodes arranged parallel to a light guiding path is implemented as at least one functional group, characterized in

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that, in addition to the phase modulator, an electrode pair arranged parallel to the light guiding path is present for applying a periodic additional modulation signal to a light beam on the light guiding path for the purpose of regulating the operation frequency of the gyroscope and the additional electrode pair being arranged between the phase modulator and a beam splitter.

However, **Page** discloses, a multifunctional integrated optical chip for a fiber optic gyroscope in which a phase modulator realized by electrodes **414** arranged parallel to a light guiding path **378/380** is implemented as at least one functional group, characterized in that, in addition to the phase modulator **398**, an electrode pair **414** arranged parallel to the light guiding path **378/380** is present for applying a periodic additional modulation signal to a light beam on the light guiding path **378/380** for the purpose of regulating the operation frequency of the gyroscope (Column 35, lines 38-51 and Fig. 14).

4. **Page** also discloses, the additional electrode pair **414** is arranged between the phase modulator **398** and a beam splitter **372** (Figs. 13 and 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the additional pair of electrodes of **Page** with the analog and digital sections in the Multifunctional integrated optical chip of **Spahlinger**, in order to allow the use of a relatively high modulator scale factor, while simultaneously allowing for low voltage operation and a relatively small volume size for the modulator.

***Response to Arguments***

5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.
6. Applicant's arguments, see Applicant Arguments/Remarks Made in an Amendment, filed on February 21, 2007, with respect to the rejection(s) of claim(s) 2 and 3 under **Chang**, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over **Chang** in view of **Page** (5,157,461).

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection (In regards to Claim 2) presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to IYABO S. ALLI whose telephone number is 571-270-1331. The examiner can normally be reached on M-Th 7:30am- 5:00pm; 1st F-OFF & 2nd F- 7:30-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IYABO S. ALLI  
Examiner  
Art Unit 2877  
March 14, 2007

JA



LAYLA G. LAUCHMAN  
PRIMARY EXAMINER